

**WHAT IS CLAIMED IS:**

1. A composition comprising a biologically active protein which does not therapeutically alter blood glucose levels and a carrier which comprises a positively charged backbone having attached positively charged branching groups and which is present in an effective amount for transdermal delivery, wherein the association between the carrier and the biologically active protein is non-covalent.
2. A composition according to claim 1 wherein the composition provides greater transdermal delivery of the biologically active protein relative to the agent in the absence of the carrier.
3. A composition according to claim 2 in which the biologically active protein has therapeutic activity.
4. A composition comprising a non-protein non-nucleic acid biologically active agent and a carrier which comprises a positively charged backbone having attached positively charged branching groups and which is present in an effective amount for transdermal delivery, wherein the association between the carrier and the biologically active agent is non-covalent.
5. A composition according to claim 4 wherein the composition provides greater transdermal delivery of the biologically active agent relative to the agent in the absence of the carrier.
6. A composition according to claim 5 in which the biologically active agent has a therapeutic activity.
7. A composition according to claim 3 in which the therapeutic protein has a molecular weight of at least 50,000 kD.
8. A composition according to claim 1 in which the backbone comprises a positively charged polypeptide.

9. A composition according to claim 8 in which the backbone comprises a positively charged polypeptide having a molecular weight of from about 10,000 to about 1,500,000.
10. A composition according to claim 8 in which the backbone comprises a positively charged polypeptide having a molecular weight of from about 25,000 to about 1,200,000.
11. A composition according to claim 8 in which the backbone comprises a positively charged polypeptide having a molecular weight of from about 100,000 to about 1,000,000.
12. A composition according to claim 8 in which the backbone comprises a positively charged polylysine.
13. A composition according to claim 12 in which the backbone comprises a positively charged polylysine having a molecular weight of from about 10,000 to about 1,500,000.
14. A composition according to claim 12 in which the backbone comprises a positively charged polylysine having a molecular weight of from about 25,000 to about 1,200,000.
15. A composition according to claim 12 in which the backbone comprises a positively charged polylysine having a molecular weight of from about 100,000 to about 1,000,000.
16. A composition according to claim 1 in which the backbone comprises a positively charged nonpeptidyl polymer.
17. A composition according to claim 16 in which the nonpeptidyl polymer backbone comprises a positively charged polyalkyleneimine.

18. A composition according to claim 17 in which the polyalkyleneimine is a polyethyleneimine.

19. A composition according to claim 18 in which the polyethyleneimine has a molecular weight of from about 10,000 to about 2,500,000.

20. A composition according to claim 18 in which the polyethyleneimine has a molecular weight of from about 100,000 to about 1,800,000.

21. A composition according to claim 18 in which the polyethyleneimine has a molecular weight of from about 500,000 to about 1,400,000.

22. A composition according to claim 1 in which the carrier comprises a positively charged polymer having attached positively charged branching groups independently selected from  $-(\text{gly})_{n1}-(\text{arg})_{n2}$ , HIV-TAT and fragments thereof, and Antennapedia PTD and fragments or mixtures thereof, in which the subscript  $n1$  is an integer of from 0 to about 20, and the subscript  $n2$  is independently an odd integer of from about 5 to about 25.

23. A composition according to claim 22 in which the positively charged branching groups are independently selected from groups having the formula  $-(\text{gly})_{n1}-(\text{arg})_{n2}$ .

24. A composition according to claim 23 in which the subscript  $n1$  is an integer of from about 1 to about 8.

25. A composition according to claim 23 in which the subscript  $n1$  is an integer of from about 2 to about 5.

26. A composition according to claim 23 in which the subscript  $n2$  is an odd number of from about 7 to about 17.

27. A composition according to claim 23 in which the subscript  $n2$  is an odd number of from about 7 to about 13.

28. A composition according to claim 22 in which the branching groups are selected from HIV-TAT and fragments thereof.
29. A composition according to claim 28 in which the attached positively-charged branching groups are HIV-TAT fragments that have the formula  $(\text{gly})_p\text{-RGRDDRRQRRR-(gly)}_q$ ,  $(\text{gly})_p\text{-YGRKKRRQRRR-(gly)}_q$ , or  $(\text{gly})_p\text{-RKKRRQRRR-(gly)}_q$  wherein the subscripts p and q are each independently an integer of from 0 to 20.
30. A composition according to claim 22 in which the branching groups are Antennapedia PTD groups or fragments thereof.
31. A composition according to claim 22 in which the positively charged polymer comprises a polypeptide.
32. A composition according to claim 31 in which the polypeptide is selected from polylysines, polyarginines, and polyornithines.
33. A composition according to claim 32 in which the polypeptide is a polylysine.
34. A composition according to claim 22 in which the polymer comprises a positively charged nonpeptidyl polymer.
35. A composition according to claim 34 in which the nonpeptidyl polymer comprises a positively charged polyalkyleneimine.
36. A composition according to claim 35 in which the polyalkyleneimine is a polyethyleneimine.
37. A composition according to claim 4 in which the backbone comprises a positively charged polypeptide.

38. A composition according to claim 37 in which the backbone comprises a positively charged polypeptide having a molecular weight of from about 10,000 to about 1,500,000.

39. A composition according to claim 37 in which the backbone comprises a positively charged polypeptide having a molecular weight of from about 25,000 to about 1,200,000.

40. A composition according to claim 37 in which the backbone comprises a positively charged polypeptide having a molecular weight of from about 100,000 to about 1,000,000.

41. A composition according to claim 37 in which the backbone comprises a positively charged polylysine.

42. A composition according to claim 41 in which the backbone comprises a positively charged polylysine having a molecular weight of from about 10,000 to about 1,500,000.

43. A composition according to claim 41 in which the backbone comprises a positively charged polylysine having a molecular weight of from about 25,000 to about 1,200,000.

44. A composition according to claim 41 in which the backbone comprises a positively charged polylysine having a molecular weight of from about 100,000 to about 1,000,000.

45. A composition according to claim 4 in which the backbone comprises a positively charged nonpeptidyl polymer.

46. A composition according to claim 45 in which the nonpeptidyl polymer backbone comprises a positively charged polyalkyleneimine.

47. A composition according to claim 46 in which the polyalkyleneimine is a polyethyleneimine.

48. A composition according to claim 47 in which the polyethyleneimine has a molecular weight of from about 10,000 to about 2,500,000.

49. A composition according to claim 47 in which the polyethyleneimine has a molecular weight of from about 100,000 to about 1,800,000.

50. A composition according to claim 47 in which the polyethyleneimine has a molecular weight of from about 500,000 to about 1,400,000.

51. A composition according to claim 4 in which the carrier comprises a positively charged polymer having attached positively charged branching groups independently selected from  $-(\text{gly})_{n1}-(\text{arg})_{n2}$ , HIV-TAT and fragments thereof, and Antennapedia PTD and fragments or mixtures thereof, in which the subscript  $n1$  is an integer of from 0 to about 20, and the subscript  $n2$  is independently an odd integer of from about 5 to about 25.

52. A composition according to claim 51 in which the positively charged branching groups are independently selected from groups having the formula  $-(\text{gly})_{n1}-(\text{arg})_{n2}$ .

53. A composition according to claim 52 in which the subscript  $n1$  is an integer of from about 1 to about 8.

54. A composition according to claim 52 in which the subscript  $n1$  is an integer of from about 2 to about 5.

55. A composition according to claim 52 in which the subscript  $n2$  is an odd number of from about 7 to about 17.

56. A composition according to claim 52 in which the subscript  $n2$  is an odd number of from about 7 to about 13.

57. A composition according to claim 51 in which the branching groups are selected from HIV-TAT and fragments thereof.

58. A composition according to claim 57 in which the attached positively-charged branching groups are HIV-TAT fragments that have the formula  $(\text{gly})_p\text{-RGRDDRRQRRR-(gly)}_q$ ,  $(\text{gly})_p\text{-YGRKKRRQRRR-(gly)}_q$ , or  $(\text{gly})_p\text{-RKKRRQRRR-(gly)}_q$  wherein the subscripts p and q are each independently an integer of from 0 to 20.

59. A composition according to claim 51 in which the branching groups are Antennapedia PTD groups or fragments thereof.

60. A composition according to claim 51 in which the positively charged polymer comprises a polypeptide.

61. A composition according to claim 60 in which the polypeptide is selected from polylysines, polyarginines, polyornithines, and polyhomoarginines.

62. A composition according to claim 61 in which the polypeptide is a polylysine.

63. A composition according to claim 51 in which the polymer comprises a positively charged nonpeptidyl polymer.

64. A composition according to claim 63 in which the nonpeptidyl polymer comprises a positively charged polyalkyleneimine.

65. A composition according to claim 64 in which the polyalkyleneimine is a polyethyleneimine.

66. A composition according to claim 4 containing from about  $1 \times 10^{-20}$  to about 25 weight % of the biologically active agent and from about  $1 \times 10^{-19}$  to about 30 weight % of the positively charged carrier.

67. A controlled release composition according to claim 4.
68. A composition according to claim 1 in which the biologically active protein is a botulinum toxin.
69. A composition according to claim 68 in which the botulinum toxin is selected from botulinum toxin serotypes A, B, C, D, E, F and G.
70. A composition according to claim 68 in which the botulinum toxin comprises a botulinum toxin derivative.
71. A composition according to claim 68 in which the botulinum toxin comprises a recombinant botulinum toxin.
72. A kit for administration of a composition according to claim 1 to a subject comprising a device for delivering the biologically active agent and a carrier which comprises a positively charged backbone having attached positively charged branching groups and which is present in an effective amount for transdermal delivery.
73. A kit according to claim 72 wherein the biologically active agent is a botulinum toxin.
74. A kit according to claim 72 in which the composition is contained in a device for administering the biologically active protein to a subject via the skin or epithelium.
75. A kit according to claim 74 in which the device is a skin patch.
76. A kit for administration of a biologically active protein to a subject comprising a device for delivering the biologically active protein to the skin or epithelium and a composition comprising a positively charged carrier having attached positively charged branching groups independently selected from  $-(\text{gly})_{n1}-(\text{arg})_{n2}$ , HIV-TAT and fragments thereof, and Antennapedia PTD and fragments or mixtures thereof, in which



the subscript n1 is an integer of from 0 to about 20, and the subscript n2 is independently an odd integer of from about 5 to about 25, wherein the association between the carrier and the biologically active protein is non-covalent.

77. A kit according to claim 76 in which the device is a skin patch.

78. A method of administering a biologically active protein which does not therapeutically alter blood glucose levels to a subject comprising topically applying to the skin or epithelium of the subject the protein in conjunction with an effective amount of a positively charged carrier comprising a positively charged backbone having attached positively charged branching groups, wherein the association between the carrier and the biologically active protein is non-covalent.

79. A method according to claim 78 wherein the composition provides greater transdermal delivery of the biologically active protein relative to the agent in the absence of the carrier.

80. A method according to claim 79 in which the biologically active protein has therapeutic activity.

81. A method of administering a non-protein non-nucleic acid biologically active agent to a subject comprising topically applying to the skin or epithelium of the subject the biologically active agent in conjunction with an effective amount of a positively charged carrier comprising a positively charged backbone having attached positively charged branching groups, wherein the association between the carrier and the biologically active agent is non-covalent.

82. A method according to claim 81 wherein the composition provides greater transdermal delivery of the biologically active agent relative to the agent in the absence of the carrier.

83. A method according to claim 82 in which the biologically active agent has a therapeutic activity.

84. A method according to claim 80 in which the biologically active protein and carrier are administered to the subject in a composition containing both components.

85. A method according to claim 80 in which the biologically active protein and carrier are administered separately to the subject.

86. A method according to claim 83 in which the biologically active protein and carrier are administered to the subject in a composition containing both components.

87. A method according to claim 83 in which the biologically active agent and carrier are administered separately to the subject.

88. A method according to claim 80 in which the composition is a controlled release composition or sustained release composition.

89. A method according to claim 83 in which the composition is a controlled release composition or sustained release composition.

90. A method according to claim 80 in which the therapeutic protein is a botulinum toxin.

91. A method according to claim 90 in which the botulinum toxin is selected from botulinum toxin serotypes A, B, C, D, E, F and G.

92. A method according to claim 90 in which the botulinum toxin comprises a botulinum toxin derivative.

93. A method according to claim 90 in which the botulinum toxin comprises a recombinant botulinum toxin.

94. A method according to claim 90 in which the botulinum toxin is administered to provide an aesthetic and/or cosmetic benefit to the subject.

95. A method according to claim 90 in which the botulinum toxin is administered to the subject for prevention or reduction of symptoms associated with muscle spasm or cramping.

96. A method according to claim 90 in which the botulinum toxin and the positively charged carrier are administered topically to a site on the face of the subject.

97. A method according to claim 90 in which the botulinum toxin and the positively charged carrier are administered topically to a site on the subject other than the face.

98. A composition comprising an antigen suitable for immunization and a carrier which comprises a positively charged backbone having attached positively charged branching groups and which is present in an effective amount for transdermal delivery, wherein the association between the carrier and the antigen is non-covalent.

99. A composition according to claim 98 in which the backbone comprises a positively charged polypeptide.

100. A composition according to claim 99 in which the backbone comprises a positively charged polypeptide having a molecular weight of from about 10,000 to about 1,500,000.

101. A composition according to claim 99 in which the backbone comprises a positively charged polypeptide having a molecular weight of from about 25,000 to about 1,200,000.

102. A composition according to claim 99 in which the backbone comprises a positively charged polypeptide having a molecular weight of from about 100,000 to about 1,000,000.

103. A composition according to claim 99 in which the backbone comprises a positively charged polylysine.

104. A composition according to claim 103 in which the backbone comprises a positively charged polylysine having a molecular weight of from about 10,000 to about 1,500,000.

105. A composition according to claim 103 in which the backbone comprises a positively charged polylysine having a molecular weight of from about 25,000 to about 1,200,000.

106. A composition according to claim 103 in which the backbone comprises a positively charged polylysine having a molecular weight of from about 100,000 to about 1,000,000.

107. A composition according to claim 98 in which the backbone comprises a positively charged nonpeptidyl polymer.

108. A composition according to claim 107 in which the nonpeptidyl polymer backbone comprises a positively charged polyalkyleneimine.

109. A composition according to claim 108 in which the polyalkyleneimine is a polyethyleneimine.

110. A composition according to claim 109 in which the polyethyleneimine has a molecular weight of from about 10,000 to about 2,500,000.

111. A composition according to claim 109 in which the polyethyleneimine has a molecular weight of from about 100,000 to about 1,800,000.

112. A composition according to claim 109 in which the polyethyleneimine has a molecular weight of from about 500,000 to about 1,400,000.

113. A composition according to claim 98 in which the carrier comprises a positively charged polymer having attached positively charged branching groups independently selected from  $-(\text{gly})_{n1}-(\text{arg})_{n2}$ , HIV-TAT and fragments thereof, and Antennapedia PTD and fragments and mixtures thereof, in which the subscript  $n1$  is an integer of from 0 to about 20, and the subscript  $n2$  is independently an odd integer of from about 5 to about 25.

114. A composition according to claim 113 in which the positively charged branching groups are independently selected from groups having the formula  $-(\text{gly})_{n1}-(\text{arg})_{n2}$ .

115. A composition according to claim 114 in which the subscript  $n1$  is an integer of from about 1 to about 8.

116. A composition according to claim 114 in which the subscript  $n1$  is an integer of from about 2 to about 5.

117. A composition according to claim 114 in which the subscript  $n2$  is an odd number of from about 7 to about 17.

118. A composition according to claim 114 in which the subscript  $n2$  is an odd number of from about 7 to about 13.

119. A composition according to claim 113 in which the branching groups are selected from HIV-TAT and fragments thereof.

120. A composition according to claim 119 in which the attached positively-charged branching groups are HIV-TAT fragments that have the formula  $(\text{gly})_p\text{-RGRDDRRQRRR-(gly)}_q$ ,  $(\text{gly})_p\text{-YGRKKRRQRRR-(gly)}_q$ , or  $(\text{gly})_p\text{-RKKRRQRRR-(gly)}_q$  wherein the subscripts  $p$  and  $q$  are each independently an integer of from 0 to 20.

121. A composition according to claim 113 in which the branching groups are Antennapedia PTD groups.

122. A composition according to claim 113 in which the positively charged polymer comprises a polypeptide.

123. A composition according to claim 122 in which the polypeptide is selected from polylysines, polyarginines, and polyornithines.

124. A composition according to claim 123 in which the polypeptide is a polylysine.

125. A composition according to claim 113 in which the polymer comprises a positively charged nonpeptidyl polymer.

126. A composition according to claim 125 in which the nonpeptidyl polymer comprises a positively charged polyalkyleneimine.

127. A composition according to claim 126 in which the polyalkyleneimine is a polyethyleneimine.

128. A composition according to claim 98 containing from about  $1 \times 10^{-10}$  to about 49.9 weight % of the antigen and from about  $1 \times 10^{-9}$  to about 50 weight % of the positively charged carrier.

129. A controlled release composition according to claim 98.

130. A composition according to claim 98 in which the antigen is a botulinum toxin.

131. A composition according to claim 130 in which the botulinum toxin is selected from botulinum toxin serotypes A, B, C, D, E, F and G.

132. A composition according to claim 130 in which the botulinum toxin comprises a botulinum toxin derivative.

133. A composition according to claim 130 in which the botulinum toxin comprises a recombinant botulinum toxin.

134. A composition according to claim 98 in which the antigen is suitable for childhood immunizations.

135. A kit for administration of an antigen suitable for immunization to a subject comprising a device for delivering the antigen to the skin or epithelium and a composition according to claim 98.

136. A kit according to claim 135 further comprising a custom applicator.

137. A kit according to claim 135 in which the composition is contained in a device for administering an antigen suitable for immunization to a subject via the skin or epithelium.

138. A kit according to claim 137 in which the device is a skin patch.

139. A kit for administration of an antigen suitable for immunization to a subject comprising a device for delivering the antigen suitable for immunization to the skin or epithelium and a composition comprising a positively charged carrier having attached positively charged branching groups independently selected from (gly)<sub>n1</sub>-(arg)<sub>n2</sub>, HIV-TAT and fragments thereof, and Antennapedia PTD and fragments and mixtures thereof, in which the subscript n1 is an integer of from 0 to about 20, and the subscript n2 is independently an odd integer of from about 5 to about 25, wherein the association between the carrier and the antigen is non-covalent.

140. A kit according to claim 139 in which the device is a skin patch.

141. A method of administering an antigen suitable for immunization to a subject comprising topically applying to the skin or epithelium of the subject the antigen suitable for immunization in conjunction with an effective amount of a positively charged carrier comprising a positively charged backbone having attached positively charged

branching groups, wherein the association between the carrier and the antigen is non-covalent..

142. A method according to claim 141 in which the antigen suitable for immunization and carrier are administered to the subject in a composition containing both components.

143. A method according to claim 141 in which the antigen suitable for immunization and carrier are administered separately to the subject.

144. A method according to claim 141 in which the backbone comprises a positively charged polypeptide.

145. A method according to claim 144 in which the backbone comprises a positively charged polypeptide having a molecular weight of from about 10,000 to about 1,500,000.

146. A method according to claim 144 in which the backbone comprises a positively charged polypeptide having a molecular weight of from about 25,000 to about 1,200,000.

147. A method according to claim-144 in which the backbone comprises a positively charged polypeptide having a molecular weight of from about 100,000 to about 1,000,000.

148. A method according to claim 144 in which the backbone comprises a positively charged polylysine.

149. A method according to claim 148 in which the backbone comprises a positively charged polylysine having a molecular weight of from about 10,000 to about 1,500,000.



150. A method according to claim 148 in which the backbone comprises a positively charged polylysine having a molecular weight of from about 25,000 to about 1,200,000.

151. A method according to claim 148 in which the backbone comprises a positively charged polylysine having a molecular weight of from about 100,000 to about 1,000,000.

152. A method according to claim 141 in which the backbone comprises a positively charged nonpeptidyl polymer.

153. A method according to claim 152 in which the nonpeptidyl polymer backbone comprises a positively charged polyalkyleneimine.

154. A method according to claim 153 in which the polyalkyleneimine is a polyethyleneimine.

155. A method according to claim 154 in which the polyethyleneimine has a molecular weight of from about 10,000 to about 2,500,000.

156. A method according to claim 154 in which the polyethyleneimine has a molecular weight of from about 100,000 to about 1,800,000.

157. A method according to claim 154 in which the polyethyleneimine has a molecular weight of from about 500,000 to about 1,400,000.

158. A method according to claim 141 in which the carrier comprises a positively charged polymer having attached positively charged branching groups independently selected from  $-(\text{gly})_{n1}-(\text{arg})_{n2}$ , HIV-TAT and fragments thereof, and Antennapedia PTD and fragments or mixtures thereof, in which the subscript  $n1$  is an integer of from 0 to about 20, and the subscript  $n2$  is independently an odd integer of from about 5 to about 25.

159. A method according to claim 158 in which the positively charged branching groups are independently selected from groups having the formula  $-(\text{gly})_{n1}-$   $(\text{arg})_{n2}$ .

160. A method according to claim 159 in which the subscript  $n1$  is an integer of from about 1 to about 8.

161. A method according to claim 159 in which the subscript  $n1$  is an integer of from about 2 to about 5.

162. A method according to claim 159 in which the subscript  $n2$  is an odd number of from about 7 to about 17.

163. A method according to claim 159 in which the subscript  $n2$  is an odd number of from about 7 to about 13.

164. A method according to claim 158 in which the branching groups are selected from HIV-TAT and fragments thereof.

165. A method according to claim 164 in which the attached positively-charged branching groups are HIV-TAT fragments that have the formula  $(\text{gly})_p\text{-RGRDDRRQRRR-(gly)}_q$ ,  $(\text{gly})_p\text{-YGRKKRRQRRR-(gly)}_q$ , or  $(\text{gly})_p\text{-RKKRRQRRR-(gly)}_q$  wherein the subscripts  $p$  and  $q$  are each independently an integer of from 0 to 20.

166. A method according to claim 158 in which the branching groups are Antennapedia PTD groups.

167. A method according to claim 158 in which the positively charged polymer comprises a polypeptide.

168. A method according to claim 167 in which the polypeptide is selected from polylysines, polyarginines, and polyornithines.

169. A method according to claim 168 in which the polypeptide is a polylysine.
170. A method according to claim 158 in which the polymer comprises a positively charged nonpeptidyl polymer.
171. A method according to claim 170 in which the nonpeptidyl polymer comprises a positively charged polyalkyleneimine.
172. A method according to claim 171 in which the polyalkyleneimine is a polyethyleneimine.
173. A method according to claim 141 in which the composition is a controlled release composition.
174. A method according to claim 141 in which the antigen suitable for immunization is a botulinum toxin.
175. A method according to claim 174 in which the botulinum toxin is selected from botulinum toxin serotypes A, B, C, D, E, F and G.
176. A method according to claim 174 in which the botulinum toxin comprises a botulinum toxin derivative.
177. A method according to claim 174 in which the botulinum toxin comprises a recombinant botulinum toxin.
178. A method according to claim 141 in which the antigen is suitable for childhood immunizations.
179. A method according to claim 141 in which the antigen suitable for immunization is administered to provide resistance to an environmental antigen.

180. A method according to claim 141 in which the antigen suitable for immunization is administered to provide resistance to a potential pathogen.

181. A method according to claim 141 in which the antigen suitable for immunization is administered to provide resistance to a potential biohazard.

182. A composition according to claim 4 in which a biologically active agent is an antifungal agent.

183. A composition according to claim 182 containing from about  $1 \times 10^{-10}$  to about 49.9 weight % of the biologically active agent and from about  $1 \times 10^{-9}$  to about 50 weight % of the positively charged carrier.

184. A controlled release composition according to claim 182.

185. A composition according to claim 182 in which the antifungal agent is selected from amphotericin B, fluconazole, flucytosine, itraconazole, ketoconazole, clotrimazole, econazole, griseofulvin, miconazole, nystatin, and ciclopirox.

186. A kit for administration of an antifungal agent to a subject comprising a device for delivering the antifungal agent to the skin or epithelium of the subject and a composition according to claim 182.

187. A kit according to claim 186 further comprising a custom applicator.

188. A kit according to claim 186 in which the composition is contained in a device for administering an antifungal agent to a subject via the nail plate or adjacent anatomic structures.

189. A kit according to claim 186 in which the device is a prosthetic nail plate or lacquer.

190. A method according to claim 81 in which the biologically active agent is an antifungal agent.
191. A method according to claim 190 in which an antifungal agent and carrier are administered to the subject in a composition containing both components.
192. A method according to claim 190 in which the antifungal agent and carrier are administered separately to the subject.
193. A method according to claim 190 in which the composition is a controlled release composition.
194. A method according to claim 190 in which the antifungal agent is selective from amphotericin B, fluconazole, flucytosine, itraconazole, ketoconazole, clotrimazole, econazole, griseofulvin, miconazole, nystatin, and ciclopirox.
195. A method according to claim 190 in which the antifungal agent is administered to treat the symptoms and signs of a fungal infection.
196. A method according to claim 190 in which the antifungal agent is administered to alter symptoms or signs of fungal infection of the nail plate or nail bed.
197. A positively charged polypeptide or nonpeptidyl polymer having attached positively charged branching groups independently selected from – (gly)<sub>n1</sub>-(arg)<sub>n2</sub>, HIV-TAT and fragments thereof, and Antennapedia PTD and fragments and mixtures thereof, in which the subscript n1 is an integer of from 0 to about 20, and the subscript n2 is independently an odd integer of from about 5 to about 25.
198. A positively charged polypeptide or nonpeptidyl polymer according to claim 197 in which the positively charged branching groups are independently selected from groups having the formula –(gly)<sub>n1</sub>-(arg)<sub>n2</sub>.
199. A positively charged polypeptide or nonpeptidyl polymer according to claim 198 in which the subscript n1 is an integer of from about 1 to about 8.

200. A positively charged polypeptide or nonpeptidyl polymer according to claim 198 in which the subscript n1 is an integer of from about 2 to about 5.

201. A positively charged polypeptide or nonpeptidyl polymer according to claim 198 in which the subscript n2 is an odd number of from about 7 to about 17.

202. A positively charged polypeptide or nonpeptidyl polymer according to claim 198 in which the subscript n2 is an odd number of from about 7 to about 13.

203. A positively charged polypeptide or nonpeptidyl polymer according to claim 197 in which the branching groups are selected from HIV-TAT and fragments thereof.

204. A positively charged polypeptide or nonpeptidyl polymer according to claim 203 in which the attached positively-charged branching groups are HIV-TAT fragments that have the formula  $(\text{gly})_p\text{-RGRDDRRQRRR-(gly)}_q$ ,  $(\text{gly})_p\text{-YGRKKRRQRRR-(gly)}_q$ , or  $(\text{gly})_p\text{-RKKRRQRRR-(gly)}_q$  wherein the subscripts p and q are each independently an integer of from 0 to 20.

205. A positively charged polypeptide or nonpeptidyl polymer according to claim 197 in which the branching groups are Antennapedia PTD groups or fragments thereof.

206. A positively charged polymer according to claim 197 in which the positively charged carrier comprises a polypeptide.

207. A positively charged polymer according to claim 206 in which the polypeptide is selected from polylysines, polyarginines, polyornithines, and polyhomoarginines.

208. A positively charged polymer according to claim 207 in which the polypeptide is a polylysine.

209. A positively charged polymer according to claim 197 in which the positively charged carrier comprises a positively charged nonpeptidyl polymer.

210. A positively charged polymer according to claim 209 in which the nonpeptidyl polymer comprises a positively charged polyalkyleneimine.

211. A positively charged polymer according to claim 210 in which the polyalkyleneimine is a polyethyleneimine.

212. A composition comprising a non-covalent complex of:

a) a positively-charged backbone; and

b) at least two members selected from the group consisting of:

i) a negatively-charged backbone having a plurality of attached imaging moieties, or alternatively a plurality of negatively-charged imaging moieties;

ii) a negatively-charged backbone having a plurality of attached targeting agents, or alternatively a plurality of negatively-charged targeting moieties;

iii) at least one member selected from RNA, DNA, ribozymes, modified oligonucleotide and cDNA encoding a selected transgene;

iv) DNA encoding at least one persistence factor; and

v) a negatively-charged backbone having a plurality of attached biological agents, or alternatively a negatively-charged biological agent;

wherein the complex carries a net positive charge and at least one of the members is selected from i), ii), iii) or v).

213. A method for preparing a pharmaceutical or cosmeceutical composition, the method comprising combining a positively charged backbone component and at least two members selected from the group consisting of:

- i) a negatively-charged backbone having a plurality of attached imaging moieties; or alternatively a plurality of negatively-charged imaging moieties;
- ii) a negatively-charged backbone having a plurality of attached targeting agents; or alternatively a plurality of negatively-charged targeting moieties;
- iii) at least one member selected from RNA, DNA, ribozymes, modified oligonucleic acids and cDNA encoding a selected transgene;
- iv) DNA encoding at least one persistence factor; and
- v) a negatively-charged backbone having a plurality of attached biological agents or cosmeceutical agents, or a negatively-charged biological agent or cosmeceutical agent;

with a pharmaceutically or cosmeceutically acceptable carrier to form a non-covalent complex having a net positive charge, and at least one of the members is selected from i), ii), iii) or v).

214. A composition comprising insulin and an effective amount for transdermal delivery of the insulin, of a carrier comprising a positively charged backbone having attached positively charged branching groups, wherein the association between the carrier and insulin is non-covalent.

215. A composition according to claim 214 containing insulin and a positively charged carrier in a weight ratio of from about 30:1 to about 1.01:1.

216. A controlled release composition according to claim 214.

217. A kit for administration of insulin to a subject comprising insulin and a carrier which comprises a positively charged backbone having attached positively charged branching groups and which is present in an effective amount for transdermal delivery, wherein the association between the carrier and insulin is non-covalent.

218. A kit according to claim 217 in which the composition is contained in a device for administering insulin to a subject via the skin or epithelium.



219. A method of administering insulin to a subject comprising topically applying to the skin or epithelium of the subject insulin in conjunction with an effective amount of a positively charged carrier comprising a positively charged backbone having attached positively charged branching groups, wherein the association between the carrier and insulin is non-covalent.

220. A method according to claim 219 in which the composition is a controlled release composition.

221. A composition comprising an imaging moiety and a targeting agent and a carrier which comprises a positively charged backbone having attached positively charged branching groups and which is present in an effective amount for transdermal delivery, wherein the association between the carrier and a biologically active protein is non-covalent.

222. A composition according to claim 221, wherein the imaging moiety and targeting agent are physically or chemically distinct.

223. A composition according to claim 221, wherein the imaging moiety and targeting agent are not both phosphate.

224. A composition according to claim 221 in which the imaging agent is an optical imaging agent.

225. A composition according to claim 224 in which the imaging agent is selected from Cy3, Cy3.5, Cy5, Cy5.5, Cy7, Cy7.5, Oregon green 488, Oregon green 500, Oregon, green 514, Green fluorescent protein, 6-FAM, Texas Red, Hex, TET, and HAMRA.

226. A composition according to claim 221 in which the imaging agent is suitable for magnetic resonance imaging.

227. A composition according to claim 221 in which the targeting agent recognizes melanoma.

228. A kit for administration of a composition according to claim 221 to a subject comprising a device for delivering the imaging and targeting moieties and a carrier which comprises a positively charged backbone having attached positively charged branching groups and which is present in an effective amount for transdermal delivery.

229. A method of administering an imaging moiety and a targeting agent to a subject comprising topically applying to the skin or epithelium of the subject the imaging moiety and targeting agent in conjunction with an effective amount of a positively charged carrier comprising a positively charged backbone having attached positively charged branching groups, wherein the association between the carrier and the biologically active protein is non-covalent.

230. The method according to claim 229, wherein the imaging moiety and targeting agent are physically or chemically distinct.

231. The method according to claim 229, wherein the imaging moiety and targeting agent are not both phosphate.

232. A method according to claim 229 in which the imaging agent is an —optical imaging agent.

233. A method according to claim 232 in which the imaging agent is selected from Cy3, Cy3.5, Cy5, Cy5.5, Cy7, Cy7.5, Oregon green 488, Oregon green 500, Oregon, green 514, Green fluorescent protein, 6-FAM, Texas Red, Hex, TET, and HAMRA.

234. A method according to claim 229 in which the imaging agent is suitable for magnetic resonance imaging.

235. A method according to claim 229 in which the targeting agent recognizes melanoma.

236. A method according to claim 229 in which the composition is applied for screening of patients at risk for melanoma.

237. A method according to claim 229 in which the composition is applied to aid surgical excision of melanoma.

238. A method according to claim 229 in which the composition is applied in conjunction with photographic techniques or image analysis techniques.

239. A composition comprising a non-covalent complex of:

a) a positively-charged backbone; and

b) at least two members selected from the group consisting of:

i) a negatively-charged backbone having a plurality of attached imaging moieties; or a plurality of negatively-charged imaging moieties;

ii) a negatively-charged backbone having a plurality of attached targeting agents; or a plurality of negatively-charged targeting moieties; and

iii) a negatively-charged backbone having a plurality of attached biological agents, or a negatively-charged biological agent;

wherein the complex carries a net positive charge and at least one of the members is selected from i), ii), iii) or v).

240. A method for preparing a pharmaceutical or cosmeceutical composition, the method comprising combining a positively charged backbone component and at least two members selected from the group consisting of:

i) a negatively-charged backbone having a plurality of attached imaging moieties, or alternatively a plurality of negatively-charged imaging moieties;

ii) a negatively-charged backbone having a plurality of attached targeting agents, or alternatively a plurality of negatively-charged targeting moieties; and

iii) a negatively-charged backbone having a plurality of attached biological agents or cosmeceutical agents, or a negatively-charged biological agent or cosmeceutical agent;

with a pharmaceutically or cosmeceutically acceptable carrier to form a non-covalent complex having a net positive charge, with the proviso that at least one of the members is selected from i), ii), iii) or v).